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Toward Understanding Why Fairness Matters: The Influence of Mortality Salience on Reactions to Procedural Fairness

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This article focuses on the question of why fairness matters to people. On the basis of fairness heuristic theory, the authors argue that people especially need fairness when they are uncertain about things that are important to them. Following terror management theory, the authors focus on a basic kind of human uncertainty: fear of death. Integrating these two theoretical frameworks, it is proposed that thinking about their mortality should make fairness a more important issue to people. The findings of three experiments support the authors' line of reasoning: Asking participants to think about their mortality led to stronger fair process effects (positive effects of perceived procedural fairness on subsequent reactions) than not asking them to think about mortality. It is argued that these findings suggest that fairness especially matters to people when they are uncertain about fundamental aspects of human life such as human mortality.

Social psychologists have argued convincingly that fairness and justice are key norms and values that are fundamental aspects of human life (see, e.g., Folger & Cropanzano, 1998; Tyler & Smith, 1998). Numerous articles, books, and studies have shown that how people are treated—or *procedural fairness*, as it is also commonly termed—may strongly affect a variety of beliefs, feelings, attitudes, and behaviors (see, e.g., Folger & Cropanzano, 1998; Lind & Tyler, 1988; Tyler & Lind, 1992; Tyler & Smith, 1998). On the one hand, being treated fairly by one's organization and by the people who work in the organization typically leads to higher ratings of positive affect, more positive judgments about one's relationship with the organization and the people involved, higher commitment to the organization, and more extra-role citizenship behavior (Lind & Tyler, 1988; Tyler & Lind, 1992; Tyler & Smith, 1998). People who experience unfair treatment, on the other hand, are more likely to report higher ratings of negative affect, leave their jobs, and show lower levels of commitment, and they may even start behaving in anti-normative ways (Folger & Cropanzano,

1998). These findings show that fairness plays a crucial role in social behavior. Folger (1984) has even noted that "the importance of justice cannot be overstated" (p. ix). It is therefore important to explore why fairness matters (Lind & Tyler, 1988; Tyler & Lind, 1992). In the current article, we will focus on this significant question.

The finding that perceived procedural fairness positively affects people's subsequent reactions usually is labeled the *fair process effect* (Folger, Rosenfield, Grove, & Corkran, 1979; Greenberg & Folger, 1983; van den Bos, Lind, Vermunt, & Wilke, 1997; van den Bos, Lind, & Wilke, in press; van den Bos, Vermunt, & Wilke, 1997; van den Bos, Wilke, & Lind, 1998; van den Bos, Wilke, Lind, & Vermunt, 1998). An illustration of this effect can be found in experimental studies in which researchers manipulated whether participants are or are not allowed an opportunity to voice their opinion about decisions to be made (Folger et al., 1979; van den Bos, Lind, et al., 1997; Van Prooijen, van den Bos, Wilke, & Lind, 2000). These experiments generally reveal that people judge a voice procedure to be more fair than a no-voice procedure. More important, findings frequently show fair process effects. For example, people who are allowed voice have been shown to be more satisfied with their outcomes (van den Bos, Wilke, & Lind, 1998), show less resentment (Folger et al., 1979), and judge their relationship with the experimenter to be better (Van Prooijen et al., 2000) than do those who are not allowed a voice. An alternative way to study fair process effects is reported in van den Bos, Vermunt, et al. (1997, Experiment 1). Participants in this experiment were asked to imagine that they applied for a job and that the selection process for this job consisted of nine parts. Participants then learned that the procedures used to make the decision entailed the use of information that was highly accurate (all parts were graded) or not so accurate (only one part was graded). The fair

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process effect that was studied in that experiment was under what conditions participants' outcome judgments would be more positive following the accurate as opposed to the inaccurate procedure.

Several reviews of the literature have suggested that to understand the frequently replicated fair process effect, researchers have to carefully study the psychological mechanisms underlying this effect (see, e.g., Lind & Tyler, 1988; Tyler & Lind, 1992; cf. Folger & Cropanzano, 1998). In the current article, we do this. Furthermore, as has been noted by Lind and Tyler (1988), an exciting aspect of research on procedural fairness is that effects of the concept have been found on very different human reactions. This is important because it suggests that fair process studies may have substantial implications for a multitude of domains of human behavior. In the present article, therefore, we try to show fair process effects on different human reactions. More specifically, we investigate effects of perceived procedural fairness on people's ratings of positive affect (cf. Tyler & Smith, 1998; Vermunt, Wit, van den Bos, & Lind, 1996), negative affect (cf. Folger et al., 1979), and their judgments of their relationship with authorities (cf. Tyler & Lind, 1992).

Our primary aim in this article is to enhance insights in the psychology of the fair process effect. In doing so, we focus on the question of why fairness matters to people (cf. Tyler & Lind, 1992; Tyler & Smith, 1998). To achieve this purpose, we will use insights developed within what has become known as *fairness heuristic theory*. More specifically, after we have discussed empirical findings that this framework has generated, we will draw conclusions from these findings and will expand on these previous insights by integrating them with other theoretical notions. Compared with explanations by others as well as by us in previous work, the analysis of the psychology of the fair process effect that we put forward here may yield an as-yet-unidentified and unexplored explanation of this effect (for an overview of other explanations, see Greenberg & Folger, 1983; Lind & Tyler, 1988; van den Bos, Lind, et al., 1997; van den Bos, Vermunt, et al., 1997; van den Bos, Wilke, Lind, et al., 1998).

Fairness Heuristic Theory

Fairness heuristic theory makes a number of novel predictions about the social psychology of justice and fairness (for overviews, see Lind, Kulik, Ambrose, & De Vera Park, 1993; van den Bos, 1999; van den Bos, Lind, et al., 1997; van den Bos, Vermunt, et al., 1997; van den Bos, Wilke, & Lind, 1998; van den Bos, Wilke, Lind, et al., 1998). One question that this theory poses is why fairness is important for people. Answering this question is of crucial importance for any theory about justice (van den Bos, Wilke, & Lind, 1998), and therefore we focus on this question in the present article.

Fairness heuristic theory recognizes that in several situations fairness is a salient issue. More specifically, van den Bos, Wilke, and Lind (1998) proposed that people especially need fairness judgments when they are concerned about potential problems associated with social interdependence and socially based identity processes. These problems are related to whether one can trust others not to exploit or exclude one from important relationships and groups (cf. Lind & Tyler, 1988; Tyler & Lind, 1992). An important subgroup of social relations are authority processes. On the basis of work by Tyler and Lind

(1992), fairness heuristic theory argues that because ceding authority to another person raises the possibility of exploitation and exclusion, people frequently feel uneasy about their relationship with authorities.

van den Bos, Wilke, and Lind (1998) argued that this implies that people want to have information about whether they can trust the authority. Furthermore, it was proposed that when information about whether an authority can be trusted is not available, people will resolve the question of how they should interpret the decisions of the authority by relying on perceived procedural fairness. As a consequence, people who do not have information about the authority's trustworthiness will react more positively toward the outcomes of the authority's decisions if the authority is using fair as opposed to unfair procedures. However, when people know that the authority either can or cannot be trusted they are less in need of procedural fairness information, yielding less strong effects of procedural fairness on people's reactions. The findings of two experiments support this line of reasoning. That is, in both experiments, the researchers manipulated whether participants received information that an authority could be trusted, received information that the authority could not be trusted, or were not informed about the authority's trustworthiness. The second independent variable in the experiments was whether the authority allowed or denied participants an opportunity to voice their opinion about a decision that was to be made. As predicted, results showed stronger fair process effects (on participants' outcome judgments) when participants did not know authority's trustworthiness than when they had been informed that the authority could or could not be trusted.

van den Bos, Wilke, and Lind's (1998) findings are important because they suggest that an answer to the question of why people care about fairness may be found by pointing out that people are especially in need of fairness information—and particularly, procedural fairness—when they do not have direct, explicit information regarding whether they can trust authorities. Fairness matters less when people are certain that the authority can or cannot be trusted. Other fairness heuristic studies have shown that when most relevant fairness information (e.g., information about distributive justice) provides a weak reference point (van den Bos, Wilke, Lind, et al., 1998) or is missing (van den Bos, Lind, et al., 1997), people rely more on other fairness principles (e.g., procedural fairness) to assess how to respond to the situation at hand than when the most relevant fairness information provides a strong reference point and is available (see also van den Bos, 1999; cf. Skitka, 1998).

We propose here that what these previous studies have in common is that all focus on the role of fairness in giving people information as to the extent to which they can be certain about important issues. More specifically, the previous studies have focused on the cognitive process that people need fairness less when they have been made more certain—relative to, for example, at the beginning of an experiment—about authorities' trustworthiness (both positive and negative trust; see van den Bos, Wilke, & Lind, 1998), distributive issues (see van den Bos, Lind, et al., 1997; van den Bos, Wilke, Lind, et al., 1998; cf. Skitka, 1998), or procedural issues (see van den Bos, 1999). In the current article, we expand on this by focusing on another very important, perhaps even more basic kind of uncertainty: people's fear of death. We show that this will substantially further our insights as to why

fairness matters to people. In doing so, we integrate fairness heuristic theory and previous fair process research with terror management theory.

Terror Management Theory

According to terror management theory (for overviews, see Greenberg, Solomon, & Pyszczynski, 1997; Solomon, Greenberg, & Pyszczynski, 1991), the fear of death is rooted in an instinct for self-preservation. Although human beings share this instinct with other species, only humans are aware that death is inevitable. This combination of (a) an instinctive drive for self-preservation with (b) an awareness of the inevitability of death creates the potential for paralyzing terror. Furthermore, the theory posits that this potential for terror is managed by a cultural anxiety buffer, a social psychological structure consisting of things like one's worldview and self-esteem. To the extent that this buffer provides protection against death concerns, reminding individuals of their death should increase their need for that buffer. Thus, reminders of death should increase the need for the protection provided by the buffer and therefore lead to strong negative evaluations of people whose behaviors and beliefs impinge on that worldview, hence leading to strong positive evaluations of those whose behaviors and beliefs uphold or provide an opportunity to reconstruct the worldview. (For more extensive introductions to terror management theory, see Greenberg et al., 1997; Solomon et al., 1991.)

Although an elaborate overview of the empirical work on terror management is beyond the scope of this article (for more complete descriptions, see, e.g., Arndt, Greenberg, Solomon, Pyszczynski, & Schimel, 1999; Greenberg et al., 1990; Harmon-Jones et al., 1997; McGregor et al., 1998; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989), results are in accordance with this line of reasoning. That is, studies have shown that compared with participants who are not asked to think about their mortality, participants who are asked to think about their mortality react more negatively toward people who violate their norms and values and react more positively toward people who bolster their cultural norms and values. For example, Rosenblatt et al. (1989) showed that when mortality was made salient, participants with relatively negative attitudes toward prostitution recommended harsher bonds for a prostitute than when mortality was not salient. Furthermore, results also revealed that mortality salient participants recommended larger rewards for a hero who upheld cultural values than control participants.

The Current Research

In the current article, we use the line of reasoning provided by terror management theory, integrate it with fair process and fairness heuristic research, apply it to why fairness matters, and extend it. That is, previous terror management studies have been related to social norms and values in general but have not explicitly investigated the question why fairness matters to people. This lack of evidence regarding fairness—as opposed to broader and hence potentially more vague cultural norms about, for example, prostitutes or heroes (see Rosenblatt et al., 1989)—is unfortunate given the potential value of terror management theory as a framework on the psychology of social justice. Thus, we do not know terror management's explicit

contribution to our understanding of one of the most important social norms and values, if not the most important (see, e.g., Folger, 1984; Folger & Cropanzano, 1998; Tyler & Smith, 1998): fairness. In the experiments presented in this article, therefore, we use insights from the terror management framework to study why fairness matters to people. More specifically, we manipulated mortality salience in prototypical fair process experiments (van den Bos, Lind, et al., 1997; van den Bos, Vermunt, et al., 1997): Following previous terror management studies (e.g., Arndt et al., 1999; Greenberg et al., 1990; Harmon-Jones et al., 1997; McGregor et al., 1998), we varied whether participants were asked to think about their mortality (mortality salient condition) or were not asked to think about their mortality (control condition). Following previous fair process studies (e.g., van den Bos, Lind, et al., 1997), we manipulated in Experiments 1 and 2 whether participants received an opportunity to voice their opinion (voice procedure) or did not receive such an opportunity (no-voice procedure). Following van den Bos, Vermunt, et al., (1997), we manipulated in Experiment 3 whether participants were confronted with an accurate or an inaccurate procedure.

On the basis of terror management theory and the empirical evidence that this framework has generated (see, e.g., Arndt et al., 1999; Greenberg et al., 1990, 1997; Harmon-Jones et al., 1997; McGregor et al., 1998; Rosenblatt et al., 1989; Solomon et al., 1991), we argue that participants who are asked to think about their mortality will react more negatively toward violation and more positively toward things that uphold or bolster cultural norms and values. Furthermore, Lind and Tyler (1988) argued that in most situations most people (a) judge unfair procedures to be in violation of cultural norms and values and (b) think of fair procedures as being in correspondence with norms and values of good behavior and conduct. On the basis of this line of reasoning, we predicted that participants would show stronger fair process effects in the mortality salient condition than in the control condition (Hypothesis 1).

We think it is interesting to investigate this hypothesis not only because of the above-mentioned reasons, but also because the hypothesis can be contrasted with suggestions that thinking about death and mortality can be so overwhelming that other issues receive less attention than they normally do (see, e.g., Battegay, 1975; Casey, 1981; Fortner & Niemeyer, 1999). This suggests that after they have been thinking about death and mortality, our participants may feel that whether or not they are allowed an opportunity to voice their opinion or whether they are confronted with accurate or inaccurate procedures in the lab experiments is not very important. Related to this, we argue that thinking about their death is more involving for people and demands more cognitive capacity than not thinking about death and that therefore procedural fairness will exert less impact on participants' reactions. Therefore, as an alternative we hypothesize: Weaker fair process effects will be found in the mortality salient conditions than in the control conditions (Hypothesis 1_{alt}).

Experiment 1

We investigated these hypotheses in three experiments. As in most previous terror management studies (for overviews, see Greenberg et al., 1997; Solomon et al., 1991), the mortality salient

condition was induced by having participants write down their responses to two questions about death. Because we wanted participants in the control condition of Experiment 1 to have as much cognitive capacity available as possible (cf. Hypothesis 1_{alt}), participants in the control condition of Experiment 1 simply were not asked to write something down; this is a manipulation that is in correspondence with previous terror management studies by Greenberg et al. (1990, Study 1) and Rosenblatt et al. (1989, Studies 1–5). Because it is important to measure people's affective reactions following perceived fairness (Tyler & Smith, 1998), and following previous justice research (e.g., van den Bos, Bruins, Wilke, & Dronkert, 1999; Vermunt et al., 1996), main dependent variables in Experiment 1 were participants' ratings of positive affect.

Method

Participants and design. Eighty-eight students (34 men and 54 women) at Leiden University participated in the experiment and were paid for their participation. Participants were randomly assigned to one of the conditions of the 2 (mortality salience: salient vs. control) \times 2 (procedure: voice vs. no voice) factorial design. Twenty-two participants took part in each of the four conditions.

Experimental procedure. Students at Leiden University were invited to the laboratory to participate in a study on how people perform tasks.¹ On arrival at the laboratory, participants were led to separate cubicles, each of which contained a computer with a monitor and a keyboard. Next to the monitor, participants found a piece of paper and a pencil. Participants were told that the computers were connected to one another and that the experimenter could communicate with them by means of the computer network. The computers were used to present the stimulus information and to collect data on the dependent variables and the manipulation checks. Participants participated in the experiment and answered the questions that constituted the dependent variables and the manipulation checks before participating in two other, unrelated experiments. The experiments lasted a total of 105 min, and participants were paid 17.50 Dutch guilders for their participation (1 Dutch guilder equaled approximately U.S.\$0.45 at the time the experiments in this article were conducted).

In the first part of the instructions, participants were informed that they participated in the experiment with another person, referred to as "Other." The experimental procedure was then outlined to the participants: After the experimental tasks were explained, participants would practice the tasks for 2 min, after which time they would work on the tasks for 10 min. Furthermore, participants were informed that after all participants were run, a lottery would be held among all participants. The winner of this lottery would receive 100 Dutch guilders. (Actually, after all participants had completed the experiment, the 100 Dutch guilders were randomly given to one participant; a procedure to which none of the participants objected on debriefing.) Participants were told that a total of 200 lottery tickets would be divided among all participants. Furthermore, participants were told that after the work round, the experimenter would divide some lottery tickets between them and Other. Seven practice questions were posed to ensure comprehension of the lottery. If participants gave a wrong answer to a question, the correct answer was disclosed and main characteristics of the lottery were repeated.

The task was then explained to the participants. Figures would be presented on the upper right part of the computer screen. Each figure consisted of 36 squares, and each square showed one of eight distinct patterns. On the upper left side of the computer screen, one of the eight patterns would be presented, and participants had to count the number of squares with this pattern in the figure on the right side of the screen. When participants had indicated the correct number of patterns in the figure on the right side of the screen, another figure and another pattern would be

presented on the screen. In both the practice round and the work round, the number of tasks that the participant had completed (i.e., the number of figures that the participant had counted) in the present round would be presented on the lower right side of the screen. On the lower left side of the screen, the time remaining in the present round was shown.

The practice round then began, after which the work round began. After the work round had ended, participants were told how many tasks they had completed in the work round, and—to try to ensure that participants compared themselves with Other—it was communicated to the participant that Other had completed an equivalent number of tasks. To assess whether participants thought of Other as a person who was comparable in the amounts of inputs he or she provided (cf. van den Bos, Lind, et al., 1997), they were asked to what extent Other had performed well in the work round relative to the performance of the participant self (1 = *much worse*, 4 = *equally*, 7 = *much better*), to what extent Other did his or her best in the work round relative to the participant self (1 = *much worse*, 4 = *equally*, 7 = *much better*), and to what extent Other was good in performing the tasks in the work round relative to the participant self (1 = *much worse*, 4 = *equally*, 7 = *much better*). After this, participants were asked to think for 1 min about the percentage of lottery tickets that they should receive relative to Other.

Mortality salience was then manipulated. As in most previous terror management studies (for overviews, see Greenberg et al., 1997; Solomon et al., 1991), the mortality salient condition was induced by having participants respond to two questions about death and by using a scale that measured how participants felt at the moment. More specifically, participants in the mortality salient condition were told that before the experimenter would divide the lottery tickets between them and Other, they would be asked to complete two questionnaires, and that after they had completed the two questionnaires, the study would continue. In the first questionnaire, participants were asked to respond to two open-ended questions concerning their thoughts and feelings about their death. Following previous terror management studies (e.g., Arndt et al., 1999; Greenberg et al., 1990; Harmon-Jones et al., 1997; McGregor et al., 1998), participants were asked to write down on the piece of paper next to the computer their answers to the questions (a) "Please briefly describe the emotions that the thought of your death arouses in you," and (b) "Please write down, as specifically as you can, what you think will happen to you as you physically die." In the second questionnaire, participants completed the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), on which they reported on 20 items how they felt at the moment. After this, participants were told that by pushing the return button on the keyboard the study would continue.

Participants in the control condition were told that before the experimenter would divide the lottery tickets between them and Other, they would be asked to complete a questionnaire, and that after they had completed the questionnaire, the study would continue. In the questionnaire that was then presented to them, participants completed the PANAS. After this, participants were told that by pushing the return button on the keyboard the study would continue.

Following previous terror management studies (see Greenberg et al., 1997; Solomon et al., 1991), we included the PANAS as a filler task and to determine whether the manipulation of mortality salience engendered positive and negative affect. The PANAS consists of two 10-item subsets (Watson et al., 1988), one measuring positive affect (PA), and one mea-

¹ Because we wanted to ensure that our mortality salience manipulation would work in Experiment 1, people who were not afraid to die because of their religious beliefs were not permitted to take part in Experiment 1. After having established in Experiment 1 that the mortality salience manipulation could be induced successfully among the resulting sample, we did not pose this constraint on participants in Experiments 2 and 3.

suring negative affect (NA), and both subsets were averaged to form reliable scales (α s = .83 and .69, respectively).

The procedure was then manipulated. In the voice condition, the experimenter allegedly asked participants, by means of the computer network, to type in their opinion about the percentage of tickets that they should receive relative to Other. (In reality, however, all stimulus information was preprogrammed.) Participants in the no-voice condition were informed that they would not be asked to type their opinion about the percentage of tickets that they should receive relative to Other.

After this, participants were asked questions pertaining to the dependent variables and manipulation checks. All ratings were made on 7-point scales. Participants' ratings of positive affect were assessed by asking participants how happy (1 = *very unhappy*, 7 = *very happy*), content (1 = *very discontent*, 7 = *very content*), and satisfied (1 = *very dissatisfied*, 7 = *very satisfied*) they felt about the way they were treated (cf. van den Bos et al., 1999; Vermunt et al., 1996). These three dependent variables were averaged to form a scale of positive affect (α = .67). The manipulation of mortality salience was checked by asking participants to what extent they had been thinking about death during the last hour (1 = *not at all*, 7 = *a lot*). To further validate the manipulation of mortality salience, participants were asked to what extent they had been thinking about human vulnerability during the last hour (1 = *very weak*, 7 = *very strong*). To check whether procedure had been induced as intended, participants were asked to what extent they agreed with the statement that they had been given an opportunity to voice their opinion about the percentage of tickets that they should receive relative to Other (1 = *strongly disagree*, 7 = *strongly agree*) and to what extent they agreed with the statement that they had *not* been given an opportunity to voice their opinion about the percentage of tickets that they should receive relative to Other (1 = *strongly disagree*, 7 = *strongly agree*). To further validate the manipulation of procedure, participants' perceptions of procedural fairness and justice were solicited: Participants were asked how fair (1 = *very unfair*, 7 = *very fair*) and just (1 = *very unjust*, 7 = *very just*) they considered the way in which they had been treated. When the participants had answered these questions and had completed the other experiments in which they would participate, they were thoroughly debriefed and were paid for their participation.

Results

Manipulation checks. A two-way multivariate analysis of variance on the two manipulation checks of procedure (the voice check and the no-voice check) yielded only a main effect of procedure at both the multivariate level and the univariate levels, multivariate $F(2, 83) = 186.33, p < .001$; for the voice check, $F(1, 84) = 376.93, p < .001$; for the no-voice check, $F(1, 84) = 130.11, p < .001$. Inspection of the means indicated that participants in the voice condition agreed more with the statement that they received an opportunity to voice their opinion ($M = 6.3, SD = 1.0$) than participants in the no-voice condition ($M = 1.5, SD = 1.3$). Participants in the no-voice condition agreed more with the statement that they did *not* receive an opportunity to voice their opinion ($M = 6.4, SD = 1.0$) than participants in the voice condition ($M = 2.2, SD = 2.2$). This suggests that procedure was successfully operationalized.

Similarly, participants' procedural fairness and justice judgments yielded only a main effect of procedure at both the multivariate level and the univariate levels, multivariate $F(2, 83) = 31.93, p < .001$; for procedural fairness judgments, $F(1, 84) = 59.53, p < .001$; for procedural justice judgments, $F(1, 84) = 62.11, p < .001$. As expected, participants who had received an opportunity to voice their opinion judged the procedure to be more fair ($M = 5.5, SD = 1.4$) and just ($M = 5.5, SD = 1.3$) than

participants who did not receive such an opportunity (M s = 3.1 and 3.2, SD s = 1.5 and 1.4, respectively). This yields additional evidence that the manipulation of procedure was perceived as intended.

A two-way analysis of variance (ANOVA) on participants' answers to the question of the extent to which they had been thinking about death during the last hour yielded only a main effect of mortality salience, $F(1, 84) = 43.89, p < .001$. Participants in the mortality salient condition indicated that they had been thinking about death to a relatively greater extent ($M = 3.9, SD = 2.6$) than participants in the control condition ($M = 1.2, SD = 0.8$). This suggests that our manipulation of mortality salience was successful in affecting the relative strength with which participants thought about mortality.²

Similarly, participants' answers to the question of the extent to which they had been thinking about human vulnerability during the last hour showed only a main effect of mortality salience, $F(1, 84) = 5.20, p < .03$. Participants in the mortality salient condition indicated that they had been thinking about human vulnerability to a relatively stronger extent ($M = 3.3, SD = 2.0$) than did participants in the control condition ($M = 2.4, SD = 1.7$). This suggests that our manipulation of mortality salience was successful in affecting participants' relative strength of thoughts about human vulnerability.

PANAS findings. In most terror management studies, a version of the PANAS questionnaires is administered immediately following the mortality salient manipulation. The purpose of this is to have a filler task and to find out whether mortality salience has an effect on participants' affective reactions. We therefore included the PANAS after the manipulation of mortality salience and before the manipulation of procedure. In previous terror management studies (for an overview, see Greenberg et al., 1997) typically no effects of mortality salience on the PANAS questionnaires were found. Results of Experiment 1, however, show that mortality salience had a multivariate effect on participants' scores on the PANAS scales, $F(2, 83) = 4.89, p < .02$; an effect that was caused by a univariate effect on the NA scale, $F(1, 84) = 6.82, p < .02$. (Other multivariate and univariate effects were not significant.) Inspection of the means indicated that participants showed somewhat higher ratings on the NA scale in the mortality salient condition ($M = 1.3, SD = 0.3$) than in the control condition

² The means in the mortality salient condition were not very high. This may have been caused by the fact that we measured the mortality salience checks by asking to what extent participants had been thinking about the topic under consideration *during the last hour*. The manipulation of mortality salience typically took no longer than *two or three minutes*, so it should come as no surprise that means in the mortality salient condition were not very high. However, it should be noted here that as expected, we found significant effects of mortality salience in ways we intended with this manipulation on both the mortality salience manipulation checks and the main dependent variables. This shows that our manipulation of mortality salience was successful in affecting some well-specified variables in intended ways, which suggested to us that it was acceptable to keep using the label *mortality salient condition*.

Table 1
Means and Standard Deviations of Ratings of Positive Affect as a Function of Mortality Salience and Procedure (Experiment 1)

Procedure	Mortality salience			
	Salient		Control	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Voice	5.3	1.0	4.4	1.1
No voice	3.6	1.3	3.7	1.1

Note. Ratings were made on 7-point scales, with higher values indicating more positive ratings of the dependent variable.

($M = 1.1$, $SD = 0.2$).³ Overall mean of the PA scale was 3.0 ($SD = 0.7$).

Comparability measures. Participants' comparability judgments yielded no significant effects of the manipulations at both the multivariate level and the univariate levels. Inspection of the means indicated that our participants thought that the other participant had performed equally well in the work round ($M = 3.9$, $SD = 0.5$), had done equally his/her best in the work round ($M = 4.0$, $SD = 0.5$), and was equally good in performing the tasks ($M = 4.0$, $SD = 0.4$). Between 93% and 96% of the participants answered "4" on the comparability questions. Thus, in correspondence with previous work (van den Bos, 1999; van den Bos, Lind, et al., 1997; van den Bos, Wilke, & Lind, 1998), we can conclude that participants thought of the other person as a comparable person with respect to the tasks that were completed in the experiment.⁴

Percentage findings. Participants who were allowed voice ($n = 44$) typed in their opinion about the percentage of tickets that they should receive relative to the other participant. An ANOVA indicated that independent of mortality salience, participants typed in that the lottery tickets should be divided equally between themselves and the other participant: Thirty-nine of the participants answered that they should get 50% of the tickets, and the mean percentage was 51.5% ($SD = 7.6$). These findings support equity theory: Participants preferred to divide outcomes equally between themselves and the other participant (who contributed an equal amount of inputs, and who hence deserved—according to equity theory—to receive the same amount of outputs as the participants themselves).

Dependent variables. Main dependent variables in Experiment 1 were participants' ratings of positive affect (perceived happiness, contentment, and satisfaction), ratings which were measured after both mortality salience and procedure had been induced. The means and standard deviations of the positive affect scale are displayed in Table 1. Participants' answers on this positive affect scale yielded only a main effect of procedure, $F(1, 84) = 24.62$, $p < .001$, and an interaction effect, $F(1, 84) = 4.37$, $p < .05$. The main effect of procedure indicated that participants' affect ratings were more positive when they received an opportunity to voice their opinion than when they did not receive such an opportunity. More interesting, the interaction effect showed that as predicted, the effect of procedure was stronger in the mortality salient condition, $F(1, 84) = 24.86$, $p < .001$, $\eta^2 = .23$, than in the control condition, $F(1, 84) = 4.13$, $p < .05$, $\eta^2 = .05$.

As an aside, it can be noted here that significant effects of mortality salience were found on the dependent variables within the voice conditions, $F(1, 84) = 7.17$, $p < .01$, and not within the no-voice conditions, $F < 1$. This suggests that mortality salience can lead to stronger reactions following fair events. We will come back to this in the *Discussion* section of Experiment 3.

Discussion

The findings of Experiment 1 support our line of reasoning: As expected, findings indicate that people's ratings of positive affect are more positive when they have received an opportunity to voice their opinion than when they did not receive such an opportunity. Furthermore, as predicted, our findings show that this fair process effect is stronger when people have been thinking about mortality than when they have not been thinking about mortality.

Before we draw strong conclusions on the basis of these findings, however, it is important to replicate them. Replicating is also important because participants in the control condition of Experiment 1 were not asked to write down their responses to questions similar to the questions posed in the mortality salient condition. In the control condition of Experiment 2, therefore, questions were posed that were similar in format as the questions asked in the mortality salient condition. More specifically, the control condition of Experiment 2 concerned an aversive event other than death: Participants in the control condition of Experiment 2 were asked to write down their responses to questions about dental pain (cf. Arndt et al., 1999, Studies 1 and 2; McGregor et al., 1998, Studies 2–4).

Dependent variables in Experiment 2 again included participants' affective reactions, but because it is important to measure people's negative affective reactions following perceived fairness (Folger & Cropanzano, 1998; Folger et al., 1979), this time we solicited ratings of negative affect. Furthermore, because it is important to assess how people react to authorities (Tyler & Lind, 1992), we also measured participants' evaluations of their relationship with the experimenter.

Experiment 2

Method

Participants and design. Sixty-one students (18 men and 43 women) at Leiden University participated in the experiment and were paid for their

³ The effect of mortality salience on the NA scale was not expected. It should be noted, however, that effect size ($\eta^2 = .08$) and differences between means (1.3 vs. 1.1) were very small. Moreover, after controlling for participants' scores on the NA scale in an analysis of covariance, dependent variables in Experiment 1 still yielded a main effect of procedure, $F(1, 83) = 24.91$, $p < .001$, and an interaction effect between mortality salience and procedure, $F(1, 83) = 4.57$, $p < .04$, showing that the effect of procedure was stronger in the mortality salient condition, $F(1, 83) = 7.70$, $p < .01$, than in the control condition, $F < 1$. Furthermore, mortality salience had no effects on the PANAS scales in Experiments 2 and 3. This shows that mood cannot explain the findings reported in this article.

⁴ Participants' scores on the comparability questions did not vary enough to dichotomize participants' answers on the comparability questions in a meaningful way or to calculate meaningful correlations between participants' answers on the comparability questions and the dependent variables.

participation. Participants were randomly assigned to one of the conditions of the 2 (mortality salience: salient vs. control) \times 2 (procedure: voice vs. no voice) factorial design. A minimum of 14 and a maximum of 16 participants took part in each of the four conditions.

Experimental procedure. The experimental procedure was the same as in Experiment 1, except for the below-mentioned points. Participants participated in the experiment and answered the questions that constituted the dependent variables and the manipulation checks before participating in another, unrelated experiment. The experiments lasted a total of 90 min, and participants were paid 15 Dutch guilders for their participation.

The mortality salient condition was induced in the same way as in Experiment 1. In contrast with Experiment 1, participants in the control condition of Experiment 2 were told that before the experimenter would divide the lottery tickets between them and Other, they would be asked to complete two questionnaires, and that after they would have completed the two questionnaires, the study would continue. In the first questionnaire, participants were asked to respond to two open-ended questions concerning their thoughts and feelings about them having dental pain. They were asked to write down on the piece of paper next to the computer their answers to the questions (a) "Please briefly describe the emotions that the thought of you having dental pain arouses in you," and (b) "Please write down, as specifically as you can, what you think will happen to you as you physically have dental pain." In the second questionnaire, participants completed the PANAS. After this, participants were told that by pushing the return button on the keyboard, the study would continue. The positive and negative subsets of the PANAS yielded reliable scales in Experiment 2 (α s = .82 and .88, respectively).

In addition to the manipulation checks of Experiment 1, participants in Experiment 2 were asked to what extent they had been thinking about dental pain during the last hour (1 = *not at all*, 7 = *a lot*). Dependent variables in Experiment 2 were ratings of negative affect and relational judgments: Following previous procedural fairness experiments (e.g., van den Bos & Spruijt, 1999; van den Bos & Van Prooijen, 2000), participants' ratings of negative affect were assessed by asking participants how angry (1 = *not at all angry*, 7 = *very angry*), hostile (1 = *not at all hostile*, 7 = *very hostile*), furious (1 = *not at all furious*, 7 = *very furious*), and disappointed (1 = *not at all disappointed*, 7 = *very disappointed*) they felt about the way they were treated. These four ratings were averaged to form a scale of negative affect (α = .97). Following the relational model (e.g., Tyler & Lind, 1992; Tyler & Smith, 1998; cf. Lind & Tyler, 1988; Van Prooijen et al., 2000), participants' relational judgments were solicited by asking participants to what extent the experimenter had respect for them (1 = *definitely not*, 7 = *definitely*), had trust in them (1 = *definitely not*, 7 = *definitely*), was proud of them (1 = *definitely not*, 7 = *definitely*), and perceived them to be a full-fledged group member (1 = *definitely not*, 7 = *definitely*). These four judgments were averaged to form a scale of relational judgments (α = .89). When the participants had answered these questions and had completed the other experiment in which they would participate, they were thoroughly debriefed and paid for their participation.

Results

Manipulation checks. The two manipulation checks of procedure (the voice check and the no-voice check) yielded only a main effect of procedure at both the multivariate level and the univariate levels, multivariate $F(2, 56) = 227.55, p < .001$; for the voice check, $F(1, 57) = 460.11, p < .001$; for the no-voice check, $F(1, 57) = 271.54, p < .001$. Participants in the voice condition agreed more with the statement that they received an opportunity to voice their opinion ($M = 6.4, SD = 1.0$) than participants in the no-voice condition ($M = 1.4, SD = 0.8$). Participants in the no-voice condition agreed more with the statement that they did *not* receive an opportunity to voice their opinion ($M = 6.3, SD = 1.4$) than

participants in the voice condition ($M = 1.5, SD = 0.9$). This indicates that procedure was successfully operationalized.

Similarly, participants' procedural fairness and justice judgments yielded only a main effect of procedure at both the multivariate level and the univariate levels, multivariate $F(2, 56) = 31.58, p < .001$; for procedural fairness judgments, $F(1, 57) = 42.44, p < .001$; for procedural justice judgments, $F(1, 57) = 64.28, p < .001$. As expected, participants who had received an opportunity to voice their opinion judged the procedure to be more fair ($M = 5.5, SD = 1.5$) and just ($M = 5.5, SD = 1.5$) than did participants who did not receive such an opportunity (M s = 2.9 and 2.6, SD s = 1.6 and 1.3, respectively). This yields corroborative evidence that the manipulation of procedure was perceived as intended.

Participants' answers to the questions of the extent to which they had been thinking about death during the last hour and the extent to which they had been thinking about dental pain during the last hour yielded only a main effect of mortality salience at both the multivariate level and the univariate levels, multivariate $F(2, 56) = 38.26, p < .001$; for the question about death, $F(1, 57) = 71.52, p < .001$; for the question about dental pain, $F(1, 57) = 9.19, p < .01$. Participants in the mortality salient condition indicated that they had been thinking about death to a relatively greater extent ($M = 4.6, SD = 2.2$) than did participants in the control condition ($M = 1.1, SD = 0.3$). Participants in the control condition had been thinking about dental pain to a relatively greater extent ($M = 2.8, SD = 2.4$) than did participants in the mortality salient condition ($M = 1.3, SD = 1.1$). This suggests that our manipulation of mortality salience was successful in affecting the relative strength with which participants thought about mortality and dental pain.

Participants' answers to the question of the extent to which they had been thinking about human vulnerability during the last hour showed only a main effect of mortality salience, $F(1, 57) = 4.07, p < .05$. Participants in the mortality salient condition indicated that they had been thinking about human vulnerability to a relatively stronger extent ($M = 3.2, SD = 2.0$) than did participants in the control condition ($M = 2.2, SD = 1.7$). Mortality is, of course, more related to human vulnerability than is dental pain, and these findings suggest that our manipulation of mortality salience was successful in affecting participants' relative strength of thoughts about human vulnerability in ways that were intended with this manipulation.

PANAS findings. We administered the PANAS after the mortality salience manipulation and before the procedure manipulation to determine whether mortality salience had an effect on participants' scores on the PANAS scales. In Experiment 1, mortality salience had an unexpected, albeit small, effect on the PANAS findings. We therefore checked whether mortality salience had an effect in Experiment 2 on participants' scores on the PANAS scales: Results showed that this was not the case (all F s < 1 ; all p s $> .45$). This is in correspondence with previous terror management studies (for an overview, see Greenberg et al., 1997). Overall means of the PA and NA scales were 3.0 ($SD = 0.7$) and 1.4 ($SD = 0.6$), respectively.

Comparability measures. Participants' comparability judgments yielded no significant effects. Inspection of the means indicated that our participants thought that the other participant had performed equally well in the work round ($M = 3.9$,

$SD = 0.4$), had done equally his or her best in the work round ($M = 4.0$, $SD = 0.5$), and was equally good in performing the tasks ($M = 4.0$, $SD = 0.3$). Between 93% and 97% of the participants answered "4" on the comparability questions. This shows that the participants thought of the other person as a comparable person with respect to the tasks that were completed in the experiment.

Percentage findings. Participants who were allowed voice ($n = 31$) typed in their opinion about the percentage of tickets that they thought they should receive relative to the other participant. An ANOVA indicated that independent of mortality salience, participants typed in that the lottery tickets should be divided equally between themselves and the other participant: Thirty of the participants answered that they should get 50% of the tickets, and the mean percentage was 50.3% ($SD = 1.8$).

Dependent variables. Main dependent variables in Experiment 2 were participants' ratings of negative affect (perceived anger, hostility, furiousness, and disappointment) and relational judgments (perceived respect, trust, pride, and group membership value), variables that were measured after both mortality salience and procedure had been induced. The means and standard deviations of the negative affect scale and the relational judgments scale are displayed in Table 2. We first inspected the multivariate effects on these two scales. This yielded only a multivariate main effect of procedure, $F(2, 56) = 22.27$, $p < .001$, and a multivariate interaction effect, $F(2, 56) = 4.65$, $p < .02$, showing that the effect of procedure was stronger in the mortality salient condition, $F(2, 56) = 23.05$, $p < .001$, $\eta^2 = .45$, than in the control condition, $F(2, 56) = 4.81$, $p < .02$, $\eta^2 = .15$. After this, we inspected the univariate effects on the two scales.

Participants' ratings of negative affect showed only a main effect of procedure, $F(1, 57) = 44.19$, $p < .001$, and an interaction effect, $F(1, 57) = 5.04$, $p < .03$. The main effect of procedure indicated that participants' affect ratings were less negative when they received an opportunity to voice their opinion than when they did not receive such an opportunity. More interesting, the interaction effect showed that as predicted, the effect of procedure was stronger in the mortality salient condition, $F(1, 57) = 41.60$, $p < .001$, $\eta^2 = .42$, than in the control condition, $F(1, 57) = 9.31$, $p < .01$, $\eta^2 = .14$.

Participants' relational judgments yielded only a main effect of procedure, $F(1, 57) = 6.34$, $p < .02$, and an interaction effect, $F(1,$

$57) = 6.51$, $p < .02$. The main effect of procedure showed that participants' relational judgments were more positive when they were allowed an opportunity to voice their opinion than when they were denied such an opportunity. Furthermore, the interaction effect indicated that as expected, the effect of procedure was stronger in the mortality salient condition, $F(1, 57) = 13.53$, $p < .01$, $\eta^2 = .19$, than in the control condition, $F < 1$, $\eta^2 = .00$.

Additionally, it can be noted that significant effects of mortality salience were found within the no-voice conditions, at both the multivariate level and the univariate levels, multivariate $F(2, 56) = 4.13$, $p < .03$; for negative affect ratings, $F(1, 57) = 4.84$, $p < .04$; for relational judgments, $F(1, 57) = 5.44$, $p < .03$. Effects of mortality salience did not reach conventional levels of significance within the voice conditions, multivariate $F(2, 56) = 1.69$, $p < .20$; for negative affect ratings, $F(1, 57) = 2.08$, $p < .16$; for relational judgments, $F(1, 57) = 2.12$, $p < .16$. This suggests that mortality salience also can lead to stronger reactions following unfair events (cf. Experiment 1). We will discuss the implications of this in the *Discussion* section of Experiment 3.

Discussion

The reported findings support our line of reasoning. That is, as expected, our findings indicate that people's ratings of negative affect and their relational judgments are less positive when they do not receive an opportunity to voice their opinion than when they do receive such an opportunity. Furthermore, as predicted, both negative affect ratings and relational judgments show that this fair process effect is stronger when people have been thinking about mortality than when they have been thinking about another aversive subject.

Results of participants' relational judgments in fact show that in the control condition these judgments did not significantly differ as a function of procedure. Previous studies have found that in experimental research relational judgments sometimes are not strongly affected by variations in procedure (e.g., Van Prooijen et al., 2000). In correspondence with Tyler and Lind (1992), we assume that this is caused by the fact that relationships with experimenters in lab experiments are more sterile and less important than relationships with authorities in everyday life. What the present data do show, however, is—as predicted—a strong, significant effect of procedure on participants' relational judgments in the mortality salient condition. Thus, negative affect ratings as well as relational judgments yielded stronger fair process effects in the mortality salient conditions than in the control conditions. What is interesting about the relational judgments data is that they show that there are some conditions under which people's reactions to authorities are strongly affected by the fairness of the procedures the authorities have been enacting and that there are conditions under which authorities' conduct has less impact. This might stimulate future research to systematically investigate people's reactions to authorities as a function of perceived procedural fairness and may yield further insights into the psychology of why people may be willing to voluntarily defer to authorities and show cooperative behaviors in social relationships (for an overview of the psychology of legitimacy and authority, see Tyler & Lind, 1992; Tyler & Smith, 1998).

Table 2

Means and Standard Deviations of Ratings of Negative Affect and Relational Judgments as a Function of Mortality Salience and Procedure (Experiment 2)

Dependent variable	Procedure	Mortality salience			
		Salient		Control	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Negative affect	Voice	1.5	1.1	2.0	1.3
	No voice	4.3	1.3	3.4	1.2
Relational judgments	Voice	5.4	1.1	4.9	0.8
	No voice	4.0	1.2	4.9	1.2

Note. Ratings were made on 7-point scales, with higher values indicating more positive ratings of the dependent variable in question.

Experiment 3

In the third experiment that we present here we used a different manipulation of procedure: Participants were confronted with either an accurate or an inaccurate procedure (cf. van den Bos, Vermunt, et al., 1997). We did this because there are a number of alternative ways to manipulate procedural fairness, and we would feel more certain about our line of reasoning if one of these alternative procedures produced consistent results. An additional aim of Experiment 3 was to use a less disruptive experimental procedure than in Experiments 1 and 2. That is, in Experiments 1 and 2, participants received instructions, completed task rounds, and answered some questions about the other participant. After this, the experiments were stopped, mortality salience was manipulated, and the PANAS was administered. After participants had completed the PANAS, the experiments continued. In Experiment 3, we decided to use a nondisruptive method to investigate our hypotheses: In the first part of the experiment, we manipulated mortality salience and asked participants to complete the PANAS. In the second part of the experiment, participants received the stimulus materials and manipulation of procedure used in van den Bos, Vermunt, et al., (1997, Experiment 1). The mortality salience conditions were the same as in Experiment 2 (mortality salient vs. dental pain). Dependent variables in Experiment 3 were the ratings of negative affect that were measured in Experiment 2 and the ratings of positive affect that were assessed in Experiment 1.

Method

Participants and design. Eighty students (11 men and 69 women) at Leiden University participated in the experiment and were paid for their participation. Participants were randomly assigned to one of the conditions of the 2 (mortality salience: salient vs. control) \times 2 (procedure: accurate vs. inaccurate) factorial design. Twenty participants took part in each of the four conditions.

Experimental procedure. The experimental procedure was the same as in Experiments 1 and 2, except for the below-mentioned points. Participants participated in the experiment after and before participating in other, unrelated experiments. The experiments lasted a total of 105 min, and participants were paid 17.50 Dutch guilders for their participation.

In the first part of the experiment, mortality salience was manipulated. This manipulation was induced in the same way as in Experiment 2. The positive and negative subsets of the PANAS yielded reliable scales (α s = .91 and .71, respectively).

After this, participants were asked to imagine the following situation:

You are someone who wants a job. You have applied for a vacant position in an organization, MicroMac Inc., and you want this position very much. MicroMac informs you that they are interested in you and they invite you to participate in the selection process that as a standard procedure, all screened applicants at MicroMac have to complete. The selection process consists of nine parts: an intelligence test, a personality test, a test assessing mathematics skills, a test assessing understanding of technical matters, a test assessing calculation skills, a test assessing language skills, a questionnaire assessing demographic data, a test assessing achievement motivation, and an interview with a personnel officer at MicroMac. You go to MicroMac and participate in the selection process.

This was followed by the manipulation of procedure. Participants read the sentence (manipulated information is in italics):

A week after you participated in the selection process you are informed that *all 9 parts [1 of the 9 parts]* of the selection process were graded.

After this, we solicited the dependent variables of Experiment 3, which were the same ratings of negative affect as in Experiment 2 (perceived anger, hostility, furiousness, and disappointment; α = .87) and the same ratings of positive affect as in Experiment 1 (perceived happiness, contentment, and satisfaction; α = .92). To assess whether the procedure manipulation of Experiment 3 had been induced as intended, we measured the same procedural fairness and justice judgments as in Experiments 1 and 2.

Results

Procedural fairness and justice judgments. As in Experiments 1 and 2, participants' procedural fairness and justice judgments yielded only a main effect of procedure at both the multivariate level and the univariate levels, multivariate $F(2, 75) = 34.97, p < .001$; for procedural fairness judgments, $F(1, 76) = 55.48, p < .001$; for procedural justice judgments, $F(1, 76) = 69.57, p < .001$. As expected, participants in the accurate procedure condition judged the procedure to be relatively more fair ($M = 4.3, SD = 1.7$) and just ($M = 4.8, SD = 1.5$) than did participants in the inaccurate procedure condition (M s = 2.0 and 2.2, SD s = 1.2 and 1.3, respectively). This shows that the manipulation of procedure was successful in affecting the relative strength of participants' procedural fairness and justice judgments in ways that were intended with this manipulation.

PANAS findings. Participants' scores on the PANAS scales showed no significant effects (all F s < 1.36; all p s > .24). Overall means of the PA and NA scales were 2.7 ($SD = 0.9$) and 1.3 ($SD = 0.3$), respectively.

Dependent variables. Main dependent variables in Experiment 3 were participants' ratings of negative affect (perceived anger, hostility, furiousness, and disappointment) and ratings of positive affect (perceived happiness, contentment, and satisfaction). The means and standard deviations of the negative affect and positive affect scales are displayed in Table 3. We first inspected the multivariate effects on these two scales. This yielded only a multivariate main effect of procedure, $F(2, 75) = 40.90, p < .001$, and a multivariate interaction effect, $F(2, 75) = 3.38, p < .04$, showing that the effect of procedure was stronger in the mortality salient condition, $F(2, 75) = 33.75, p < .001, \eta^2 = .47$, than in the

Table 3
Means and Standard Deviations of Ratings of Negative and Positive Affect as a Function of Mortality Salience and Procedure (Experiment 3)

Dependent variable	Procedure	Mortality salience			
		Salient		Control	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Negative affect	Accurate	2.5	1.0	2.8	0.9
	Inaccurate	5.5	1.0	4.4	1.6
Positive affect	Accurate	4.1	1.1	3.8	1.1
	Inaccurate	2.1	1.0	2.6	1.0

Note. Ratings were made on 7-point scales, with higher values indicating more positive ratings of the dependent variable in question.

control condition, $F(2, 75) = 10.53, p < .001, \eta^2 = .22$. After this, we inspected the univariate effects on the two scales.

Participants' ratings of negative affect showed only a main effect of procedure, $F(1, 76) = 77.01, p < .001$, and an interaction effect, $F(1, 76) = 6.77, p < .02$. The main effect of procedure indicated that participants' ratings were less negative in the accurate procedure condition than in the inaccurate procedure condition. More interesting, the interaction effect showed that as expected, the effect of procedure was stronger in the mortality salient condition, $F(1, 76) = 64.71, p < .001, \eta^2 = .46$, than in the control condition, $F(1, 76) = 19.06, p < .001, \eta^2 = .20$.

Participants' ratings of positive affect yielded only a main effect of procedure, $F(1, 76) = 46.13, p < .001$, and a marginally significant interaction effect, $F(1, 76) = 2.74, p = .10$. The main effect of procedure showed that participants' ratings were more positive in the accurate procedure condition than in the inaccurate procedure condition. Although the interaction effect failed to reach conventional levels of significance, simple main effects showed that as predicted, the effect of procedure was stronger in the mortality salient condition, $F(1, 76) = 35.66, p < .001, \eta^2 = .32$, than in the control condition, $F(1, 76) = 13.20, p < .01, \eta^2 = .15$.

It can be noted that significant effects of mortality salience were found within the inaccurate procedure conditions at the multivariate level and one univariate level, multivariate $F(2, 75) = 4.42, p < .02$; for negative affect ratings, $F(1, 76) = 8.94, p < .01$; for positive affect ratings, $F(1, 76) = 2.23, p = .14$. Effects of mortality salience did not reach conventional levels of significance within the accurate procedure conditions at both the multivariate level and the univariate levels (all F s < 1 ; all p s $> .40$). This shows that mortality salience led to stronger reactions following unfair events than following fair events. We return to this in the Discussion section below.

Discussion

The reported findings support our line of reasoning. That is, as expected, our findings indicate that people's affect ratings of negative affect and positive affect are less positive when they have been confronted with an accurate as opposed to an inaccurate procedure. The negative affect ratings yielded a stronger pattern of effects than the positive affect ratings, but—as predicted—both affect ratings showed stronger fair process effects when people had been thinking about mortality than when they had been thinking about another aversive subject. It can be concluded, therefore, that procedural fairness was manipulated in Experiment 3 by using procedural accuracy instead of voice, and findings showed that mortality salience had a moderating impact on this other method of operationalizing procedural fairness as well. Thus, the findings of Experiment 3 replicate and extend the results of Experiments 1 and 2.

More specifically, a close inspection of the findings reported in the current article shows that in Experiment 2 significant effects of mortality salience were found within the no-voice conditions—on both negative affect ratings and relational judgments—and not within the voice conditions. Similarly, Experiment 3 showed stronger effects of mortality salience within the inaccurate procedure conditions—on the negative affect ratings and, to a smaller extent, on the positive affect ratings—than within the accurate procedure conditions. In Experiment 1, however, significant effects of mortality salience were found on participants' positive affect ratings

within the voice conditions and not within the no-voice conditions. These differential findings may have been caused, among other things, by the difference in psychological impact of the fair and unfair procedure conditions in the three experiments and by having different mortality control conditions in Experiments 1 versus 2 and 3. Future research may want to discover when fairness versus unfairness affects people's reactions stronger as a function of mortality salience. The findings presented in the current article are important, however, because they have yielded evidence that mortality salience can lead to stronger reactions following both fair (Experiment 1) and unfair events (Experiments 2 and 3). In line with terror management theory (see, e.g., Rosenblatt et al., 1989), our results suggest that mortality salience may lead people to react more negatively toward violation of as well as more positively toward bolstering of their cultural norms and values.

General Discussion

The question of why fairness matters to people is a challenging one that has fascinated and puzzled philosophers and social theorists for centuries. Fairness heuristic theory posits, among other things, that fairness is sought because it provides protection against things people are uncertain about. Terror management theory states that people are especially afraid of their death. Integrating these two theoretical frameworks, the present article shows that people react especially strong to perceived fairness—and particularly procedural fairness—when they were asked to think about their mortality.

These are important findings, in part because they can be contrasted with suggestions that thinking about death and mortality can be so overwhelming that other issues receive less attention than they normally do (e.g., Battegay, 1975; Casey, 1981; Fortner & Niemeier, 1999). In correspondence with the large amount of empirical findings that terror management theory has generated (e.g., Arndt et al., 1999; Greenberg et al., 1990, 1997; Harmon-Jones et al., 1997; McGregor et al., 1998; Rosenblatt et al., 1989; Solomon et al., 1991), the current research shows that mortality salience leads people to react more negatively toward violation and more positively toward things that uphold or bolster their cultural norms and values. Moreover, the current article extends previous work on terror management theory, in that it used that theoretical framework to explicitly investigate why fairness—one of the most important social norms and values (Folger, 1984; Folger & Cropanzano, 1998; Tyler & Smith, 1998)—matters to people. Furthermore, it has done so in prototypical fairness experiments.

Terror management theory has received strong empirical support (for overviews, see Greenberg et al., 1997; Solomon et al., 1991). Being reminded about one's mortality will lead one to be more uncertain, of course, than not being reminded about this fundamental vulnerable aspect of one's life. In fact, results collected by Martin (1999) indeed show that asking people to think about their mortality—in the same way as we did in the current article—leads them to be more uncertain than not asking them to think about this subject. These are important data because they suggest that perceived uncertainty is an important psychological mechanism underlying mortality salience effects. This suggests that mortality salience may lead people to become more uncertain and, as a consequence, to react more strongly to variations in justice. Future research may want to study this implication of the

current article. We did not investigate this because in the pioneering studies presented here we wanted to examine how people react to fair and unfair events. Furthermore, we had reason to believe (cf. McGregor et al., 1998) that measuring participants' feelings of uncertainty after the mortality salience and before the procedure manipulations would disrupt the effects we were interested in: people's reactions to fair and unfair procedures. However, by showing effects of mortality salience on people's reactions to perceived procedural fairness in ways that were predicted on the basis of two important social psychological theories, we honestly believe that the present findings have provided surprising new insights into the antecedents of reactions to social justice: Fairness matters more when mortality has been made salient.

It is important to emphasize that the current findings fit in a line of research that shows that people pay more attention to fairness when they are uncertain about things like authority's trustworthiness (van den Bos, Wilke, & Lind, 1998), distributive issues (van den Bos, Lind, et al., 1997; van den Bos, Wilke, Lind, et al., 1998; cf. Skitka, 1998), or procedural issues (van den Bos, 1999). For example, van den Bos, Wilke, and Lind (1998) argued that because ceding authority to another person raises the possibility of exploitation and exclusion, people frequently feel uneasy about their relationship with authorities. Furthermore, these authors proposed that this implies that people want to have information about whether they can trust the authority. As a consequence, when information about whether an authority can be trusted is not available, people rely heavily on perceived procedural fairness, yielding strong fair process effects. However, when people receive information that the authority either can or cannot be trusted, they are less in need of procedural fairness information, yielding less strong fair process effects. This suggests that when people move from uncertainty to certainty, they end up needing fairness less.

In the current article, however, we have focused on a somewhat different cognitive process. That is, whereas the previous studies (van den Bos, 1999; van den Bos, Lind, et al., 1997; van den Bos, Wilke, & Lind, 1998; van den Bos, Wilke, Lind, et al., 1998; cf. Skitka, 1998) have paid attention to the cognitive process that people are less affected by variations in fairness information when they have been made more certain, this article has focused on the process that people are more affected by variations in fairness when they are asked to think about things they are uncertain about (especially mortality; cf. Martin, 1999). In this way, the current contribution extends previous insights by not only focusing on a new domain of content but also by calling attention to a cognitive process unidentified in previous social justice studies. It is our true hope that as a result of these enhanced insights into people's reactions to fair and unfair events, future research will further explore the exciting issues of the psychology of social justice in general and the relationship between social justice and mortality salience in particular.

At least three questions are interesting in this respect.⁵ The first question is whether our line of reasoning suggests that concerns about death and uncertainty are the only reason people care about fairness, the most important reason, or one of several (or many) reasons. This is an important question, in part because if indeed it turns out that the concern with fairness is to be completely explained in terms of mortality salience and/or uncertainty, then we could see the entire field of social justice being re-oriented. Furthermore, there certainly are concrete practical considerations that

lead people to desire fairness, considerations that may be related to the fact that fairness may make social exchange possible and that fairness can be conceived of as a social contract that may regulate social exchange. Such social contract notions could be seen as either distinct from, or part of, a terror management analysis of fairness. Taking a narrow perspective on terror management theory, this theory seems like a clearly different explanation than the social contract notions. However, one could view fear of death as a very basic fear, making terror management and social contract theories more similar to each other. The second question, therefore, is whether we should take a narrow or a broader perspective on terror management theory. Related to this is the third question: How should we conceptualize the relationship between death and uncertainty?

Our data do not provide conclusive evidence as to how to answer these questions, of course. This implies that we will have to come up with speculative ideas here that need to be empirically validated in future research. We will answer the three questions in reverse order and will formulate our answers in the form of propositions.

Our proposition about the relationship between death and uncertainty is that uncertainty is a more general, more important psychological construct than death. We propose this for two reasons, one being the fact that people are uncertain about more things than only death. The other reason is provided by one of terror management theory's assumptions that people are inclined to refrain from thinking about death. This assumption implies that in everyday life, people will be likely to avoid thinking about death. Furthermore, we believe that everyday life will make it hard to avoid being confronted with aspects of human uncertainty other than death. This suggests that in real life, uncertainty feelings in general may impact people's reactions more than thoughts about death.

Related to this is our proposition about the broadness of terror management theory, which we think of as a broad rather than narrow framework. Our proposition about the importance of death and uncertainty for understanding why people care about fairness is that uncertainty in general (and not specifically death) is one of the most important reasons—if not the most important reason—why fairness matters. Besides the above-mentioned reasons, we are putting our money on uncertainty here because the findings presented in the current article fit into a line of research that shows that people are more affected by fairness issues when they are uncertain about things that are important to them, such as authority's trustworthiness, but that are not (or at best very indirectly) related to death and mortality. To repeat, these propositions need empirical confirmation. We have spelled them out here in the hope that this will further future theorizing and new empirical work.

But, to return to the empirical work that has been presented in the current article, compared with previous social justice studies, our findings reveal something very fundamental about people's reactions to social justice: Fairness matters to people especially when they have been thinking about mortality. This suggests that having identified the influence of mortality salience on reactions to procedural fairness may help scientists in their progress toward understanding why fairness matters.

⁵ We thank a reviewer for pointing this out to us.

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